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THE
HEALTH OF TOWNS:

A PLEA

FOR

SANITARY REFORM.

BY

WILLIAM ALSTON DYKES,

HAMILTON.

God made the country, and man made the town;
What wonder then, that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound,
And least be threatened, in the fields and groves?

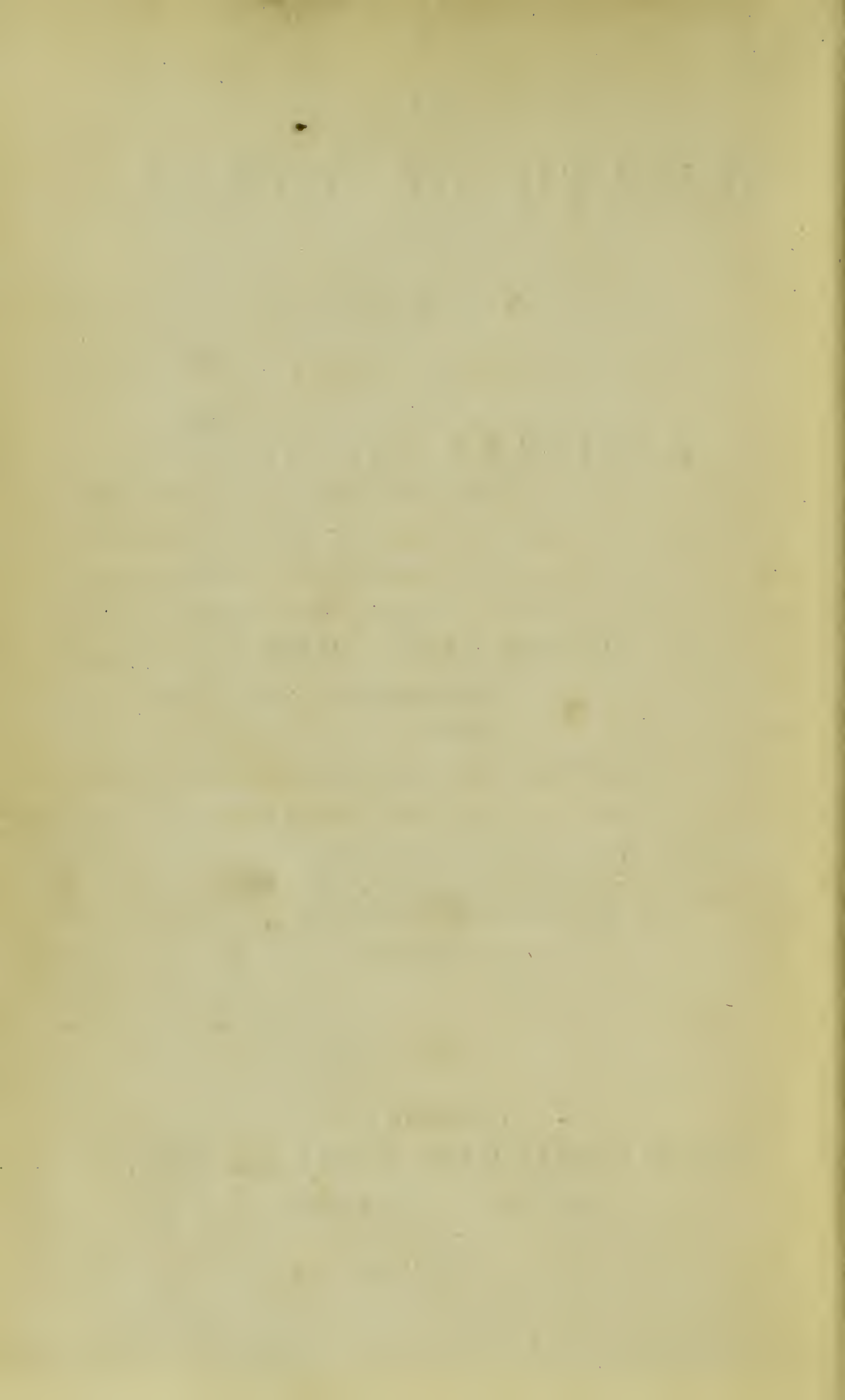
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GLASGOW:

THOMAS MURRAY & SON, BUCHANAN STREET.

HAMILTON: JAMES BROWN.

1857.



A D V E R T I S E M E N T.

THE following "PLEA" consists of TWO LECTURES, delivered to the HAMILTON MECHANICS' INSTITUTION in *February* and *March* last, and is now published at the request of several parties interested in the subject of Sanitary Reform. In reproducing it in this shape, parts have been omitted, others added, and the Statistics given have been carefully revised; but, even now, it only aims at being a summary of one of the most prominent and important subjects of the day. Those who wish to study the matter thoroughly are referred to the authorities so freely quoted in the following pages.

HAMILTON, *July*, 1857.

PRINTED BY JAMES BROWN, CADZOW STREET, HAMILTON.

THE
HEALTH OF TOWNS:

A PLEA FOR SANITARY REFORM.

IN a letter to his friend, Miss Langton, Dr. Samuel Johnson writes, —“To preserve health is a moral and religious duty, for health is the basis of all social virtues ; we can be useful no longer than while we are well.” Such, I apprehend, is the opinion every thinking person must form of the importance of health, and of those laws by which it is regulated, for in whatever light we regard it, it is the best of temporal blessings, and the sweetener of all the rest. Self-preservation is the first instinct of our nature. In this direction lie all the social, as well as all the individual interests of mankind. Organized as society is, and will continue to be, when one member suffers, all the members suffer with it, for all are bound together by one ever-vibrating chord ; and widely diversified as their lot may be, all have a community of interest in many things, and in none more than health. My subject then, as a matter of social economy, commends itself to your earnest attention.

But this is but a faint light in which to regard it. I can more confidently recommend it to you on the loftier principles of philanthropy, to say nothing of those social and domestic interests,—those ties which bind families and friends together, and lie nearest to every heart. I have called self-preservation the first instinct of our nature. It is so, but we only possess it in common with the brutes. Some there may be, in every community, with whom every interest concentrates in self. The subject is deserving of their attention as well. Indeed they have a heavy stake in it, for their neighbour's health has a most intimate connection with their own. But philanthropy is what

makes *men*; and surely when you regard our subject in its pure light, you cannot fail to be impressed with its great importance.

And Religion, moreover, solicits an earnest consideration of this matter. So identified are our bodies with the other parts of our being, that to neglect them and their wants, or to abuse them, is to do a deep injury to the faculties of our undying souls. It is a truth, too much forgotten, that the tone of the spiritual life must always be very much regulated by the state of the body,—so intimately, although so mysteriously, are they linked together. Our mental and moral nature must take very much of their caste and character from the condition of our bodies, and must ever share much in their vicissitudes.

Again, when we look to the framework of our bodies, “so fearfully and wonderfully made,”—when we contemplate in them the wisdom of the Mighty Builder,—when we regard them as the caskets of our spiritual natures,—and when, above all, we think of their great destinies, we must be impressed with the importance of those laws on which their well-being depends. It is true, we know not what our bodies “shall be hereafter;” but we do know, that here they should be “temples”—“holy and acceptable unto God.”

But, why the Health of Towns? some will say. I have circumscribed my subject thus far, because a very large and increasing majority of the people live in towns; because the sanitary condition of our towns is, as I will show, much below that of the country; because it is capable of great improvement; and because we have each a deep personal interest in such improvement. If it were not so; if the greater disease and mortality incident to the population of our towns were merely an inevitable destiny, I would not be justified in treating of them in this place. In such a light, the subject would be only painful. But it will be my principal object to show, that although the evil is great, it is far from being altogether irremediable; and this evening I will, with your leave, confine myself to a consideration of those agencies, peculiar to towns, which operate against the public health, reserving the other side of the subject—the remedy,—to a future occasion.

Putting out of account those epidemics, which now and again haunt our towns, when the Unseen—

“O'er some high-viced city hangs his poison,
In the sick air,”

life is much shorter in the town than in the country. While, as we shall find, the insalubrity of the towns will sufficiently account for the great disparity, I admit that there are some adventitious circumstances, which will in a measure help to swell the excess of the mortality in towns. From amongst others, may be noticed the fact, that not a few of the natives of the rural districts, some of them after spending their best days in country work, are drawn into the towns by the greater facilities for living, and die there. Premising so much, I shall now adduce some statistics to prove the great disparity betwixt the health of town and country.*

The annual mortality in Devonshire, an agricultural county, possessing no large towns, is 1 in 54; whereas in Lancashire, a manufacturing county, including many large towns, it is 1 in 36.

As to population, Scotland is fairly divided into two equal parts, one containing the rural districts, and the other embracing those districts which possess all the most populous towns (with a considerable mixture of rural population.) The Registrar-General's Report for the last quarter of last year, informs us, that in these town districts, containing one-half of the whole population, the deaths were at the rate of 1 in every 37, while in the country districts, embracing the other half of the people, the deaths were at the rate of 1 in every 68. And this is not an exceptional case, but the rule of things; for we find, from the same Returns, that in the second quarter of 1855, the deaths in the country districts were at the rate of 1 in 61, while in the town districts they were 1 in 36. Again, in the fourth quarter of 1855, the rate of mortality in the county of Lanark was more than four times that in Sutherland and Nairn. In reference to this subject, the Registrar says, on comparing the deaths in the one division of Scotland with those in the other, "during one quarter, 3034 lives were sacrificed to the baneful influences, whatever they are, connected with the congregating of masses of human beings in towns." He adds, "defective sanitary arrangements must doubtless, in many of our crowded towns, exercise a considerable influence in causing so high a rate of mortality; this influence, indeed, can hardly be over-estimated."†

* The following statistics are of various dates, as well as from various sources:—the greater part of them are from the Report of the Poor Law Commissioners on the Sanitary Condition of the Working Classes, presented to Parliament in 1842.

† Quarterly Returns published by the Registrar-General for Scotland, Nos. II., IV., VI., VIII.

Our own little town presents a striking instance of the difference between the health of town and country. During the last year, the deaths in the country part of the parish amounted to 1 in every 78, while in the burgh they numbered 1 in every 36, or more than double.* The large towns, again, differ very much among themselves in point of healthfulness. Thus, in London the average duration of human life is 37 years, while in Liverpool it is only 26 years. In the latter place, the average duration of the life of artizans is only 15 years;—a melancholy fact, but sufficiently accounted for by the nature of the dwelling-houses occupied by the poorer classes, of whom, some years ago, nearly forty thousand lived in cellars.

It cannot be unknown to most of you, that a large proportion of the aggregate mortality is made up of infants, one-fourth of the children born in Great Britain dying before they are five years of age; and we will not wonder at the precarious tenure by which the tender infants hold life, when we shall have considered some of the evil influences that are preying upon the lives and health of the parents.

But let us examine this most interesting, though painful, part of our subject, a little more minutely, and we will find how large a part of this great mortality is to be ascribed to the evils of town life. Take 1000 infants throughout the kingdom; only 850 of them will see the close of the first year of their existence. At the end of the second year, there will remain only 800; and when five years will have gone by, only 742 will remain. But these statistics only apply to the kingdom generally, rural and urban. In towns, the deaths amongst children exceed very much the numbers I have quoted, as the following examples will show:—

Of 1000 children born in London, only 592 survive their fifth year.

„	„	Birmingham,	518	„	„
„	„	Leeds,	520	„	„
„	„	Manchester,	490	„	„
„	„	Liverpool,	472	„	„

Of 139,593 children who died in London during the seven years ending in 1844, under five years of age, 58,951 died—and mark this—*from being born in the Capital!* This was easily proved by

* This calculation takes the population as at last census.

comparison with the neighbouring rural districts. What an awful picture is this ! How much suffering, never expressed ! How many Rachels, weeping and un comforted !

The statistics I have given, and have still to give, have reference merely to the *mortality* of towns. No figures, no statistics, can ever tell the amount of sickness and disease which revels in our closely-packed communities; and no powers of the lecturer can depict it :—the enervated frame,—the relaxed muscle,—the hollow cheek,—the hopeless imbecility,—and all the dire train of diseases which are the forerunners of death, must be left to your imagination. But in the figures I have quoted, what ample evidence is there to the truth of the well-known lines :—

“ God made the country, and man made the town ;
 What wonder then, that health and virtue, gifts
 That can alone make sweet the bitter draught,
 That life holds out to all, should most abound,
 And least be threatened, in the fields and groves ? ”

Allow me to sum up these dire statistics, with a statement affording a very startling summary :—In 1841, the number of registered deaths throughout England and Wales was 343,847, of which only 37,253 were entered as from “ old age,” all the others arising from causes more or less *preventible*. Usage makes us regard this great loss of life as unavoidable, but it is not so. To quote the words of Dr. Guy, and there is something awful in them, “ *the annual slaughter in England and Wales from preventible causes of typhus fever alone, attacking persons in the vigour of health, is double the amount of what was suffered by the allied armies at Waterloo.* ”

So much for the difference between the health of town and country. It now remains to enquire into the causes which go to swell to such an extent the mortality of the former.

While facts prove that mortality in towns increases in proportion to *poverty*, I am convinced that poverty itself is not a cause of the greater mortality. It is rather to be accounted for by the vice, the intemperance, and the filth, one or more of which are so often the associates of poverty, or rather of pauperism ; neither, as a rule, can I think of linking together filthiness and poverty, for the former rather indicates depravity than destitution. In the country, the poor are really poorer than those in the towns, yet healthier ; and even in the towns the virtuous poor have comparative comfort. My statement is

also verified by the remarkable fact, that artizans (at least of some trades) are healthiest when out of employment. This applies to weavers and such like, but not to out-door workers. The former are less liable to fevers when unemployed, even though suffering from want. In Paisley, in May 1832, there was an almost entire cessation from work; so great was it, that means were taken by subscriptions to relieve those out of employment. There was, at the same time, an extraordinary diminution in the number of fever cases; but trade revived, and a new epidemic broke out.* I could quote other similar cases, but need not. It is true that deaths from starvation do now and then occur, and the thought is awful;—and diseases induced by want and poor diet are far from being rare. But still, there can be little doubt, that these cases must be more than counterbalanced by the diseases and deaths resulting from over-feeding and luxurious living. It is not easy to detect the root of the evils that afflict the lot of many of our poorer neighbours: they run in a circle—ignorance causing poverty, and poverty perpetuating ignorance,—that, again, lowering the moral feeling, and this breeding filth.

I wish to speak gently of the poor. I cannot agree with those who, in their minds, associate deep poverty with immorality. Innumerable sad cases, where the two are unhappily united, there may be. But may not, does not much of the difference between their case and that of their richer neighbours lie here, that while the veil, which even human nature wishes to throw over bad lives, is, in the one case, ornamental and entire, and in the other torn or rent in twain. And God only knows the syren notes of temptation—the grand resolutions—the treachery endured—the struggles made, and the broken heart, that go to make up many a poor man's history. The world's eye cannot appreciate the nobleness of some hearts that beat under the thread-bare garment; for, let it be remembered, there "is a mighty difference between a poor man, and what is technically called 'a pauper.' True nobility, high intelligence, glorious manhood, may be, and often are, associated with poverty; but baseness is the characteristic of the pauper properly so called." †

Forgive this apparent digression,—and, apart altogether from poverty, let me speak of *Vice*, as a source of excessive mortality in

* Report of Sanitary Commission, (1843.)

† Dr. Bell, in *Meliora*, vol. ii. 67.

towns. The poor, the weak, and the vicious, naturally herd in towns—drawn thither by the greater facilities for living.

Thither flow,

As to a common and most noisome sewer,
The dross and feculence of every land.
In cities, foul example on most minds
Begets its likeness: rank abundance breeds,
In gross and pampered cities, sloth, and lust,
And wantonness, and gluttonous excess.

Our towns and cities may be likened to moral maelstroms, gathering in and sucking down their rapacious vortices those “waifs and strays” of fallen humanity, whom want, or indolence, or vice, has thrown within their reach. But it will be enough that I name *one* vice:—fearful in its preeminence of all others, in the misery and mortality flowing from it, stands *Intemperance*,—doing more than any other, nay, than all other vices put together, to fill our poor-houses, our prisons, and our graveyards. And the grossly intemperate are not the only sufferers, for when the seeds of epidemic disease float in the atmosphere, the artizan who has his system relaxed by stimulating drinks, is liable to catch the smallest atom as it passes, while the man of both sober and cleanly habits will escape. The visitation of the cholera made this fact abundantly evident. Of 334 persons, for example, seized with cholera in a large city, and carried off, 140 were intemperate persons, 55 were free drinkers, 131 habitual moderate drinkers, 5 strictly temperate, 1 an idiot, and 2 unknown.—“The habitual use of ardent spirits, in the smallest quantities,” says an eminent medical authority, “seldom fails to invite epidemic disease, and often renders it incurable when it does come.” *

Much of the mortality in towns may be traced to the *Dwellings* occupied by the poorer classes. “A very large number of our people are not lodged as human beings ought to be, nor in such a manner as they can by possibility fulfil the duties which belong to them. No sportsman would keep his hounds, no farmer would keep his show pigs, in places thought good enough for thousands of our fellow-citizens.” † And this state of matters works as surely to the moral as the physical injury of the sufferers, for “discomfort at home leads to every sort of social evil.

* Leisure Hour, 1852, p. 37.

† Meliora, ii. 26.

There is just now going on throughout our towns a process of repletion, which may soon lead to alarming results, as it is already fertile in painful ones. And I confess, that I am almost as ignorant of its causes as I am of its ultimate effects. It cannot be said that our towns are too small, for all the additional house-accommodation provided seems to afford no relief. Our towns are panting and sweating under a plethora of inhabitants, and our country population is yearly being drained into them. Compulsory charity and legalized pauperism, "evictions" and "clearances," may cause part of this evil. That this draining process is now going on, is proved by the fact, that while in 1811 the towns held 65 per cent. of the whole population of the land, in 1851 they contained 80 per cent., or four-fifths. Where and when this state of things is to stop, is a most important question, for never will society be in a healthy state, and never will our towns be much healthier, until the tide turns, and recedes, and distributes itself more equally upon the country.

"Is this Improvement? where the human breed
 Degenerate as they swarm and overflow,
 Till Toil grows cheaper than the trodden weed,
 And man competes with man, like foe with foe,
 Till Death that thins them scarce seems public woe:
 Improvement! smiles it in the poor man's eyes,
 Or blooms it on the cheek of Labour; No!—
 To gorge a few with Trade's precarious prize,
 We banish rural life and breathe unwholesome skies."

It surely cannot be called the tendency of nature to flee the country for the town. Whatever tastes the artificial city-life may induce, there is an ever-lingering love in every breast for rural scenes: the spoutless teapot in the attic window-sill, with its few sprigs of fragrant mignonette; the shrivelled hand thrust upward through the area-grating to receive the halfpenny-worth of fresh water-cresses;—how pathetically do they tell of this inherent love.

This over-crowding is a prolific source of disease in towns. This has been well proved by comparing the mortality of several localities in one town, differing in density of population. Thus, in a large district of London, where the population is so dense, that there were only 35 square yards for each person, the annual mortality was 3,428; in another district of the same population, where each individual had an allowance of 119 square yards, the mortality fell to 2,786: and in a third, where each person had 180 square yards, the

mortality was only 2,289, or under two-thirds of what it was in the closest of the three districts. It was also found, that in the three districts, the mortality from typhus fever was, respectively, from the roomiest to the closest, 131, 181, and 349.*

The localities most fertile in disease from over-crowding are the low lodging-houses. These dens are to be found in every town, and on the visitation of epidemics have been deservedly dreaded, and made the objects of legislative interference. The rationale of the pernicious effect of over-crowding is obvious. According to Liebig, the supply of fresh air for an adult should be in the ratio of 216 cubic feet every hour. A twofold mischief is done if the supply is deficient; first, the body does not receive that (oxygen) which it should receive in order to its wellbeing; and, second, it is prevented from getting quit of that (carbonic acid) which it cannot with impunity retain.—“The mind suffers with the body—the mental energy is weakened—the elevating sentiments fade and droop—the whole man is depressed—and the end of the drama is tragic.”† The law provides that the felon in prison shall have 1000 feet of pure air. Would it strain the quality of mercy too far to make some legislative provision that the honest artizan—and many a one has not more than a fourth of that quantity—shall have a similar supply? Now, when we compare the requirements of nature with the supplies of pure air in the houses of the poor, and especially in lodging-houses, can we wonder at the evil effects of over-crowding? Add to over-crowding, the filth of some of these hovels, and the diseases of many of the inmates, and you see a great and necessary source of disease and death. We naturally shrink from the stench of decomposing organic matter, but we are assured on medical authority, that the vitiation of the atmosphere by the living is more injurious to the constitution. Allow me to quote a description of a lodging-house in Newcastle:—“The room very dirty—9 feet broad, by 15 feet long—contained four beds, in which slept two men, four women, and thirteen children. In one of the beds were two children very ill of scarlet fever;—in another, a child ill of measles;—in another, a child that had died of measles the day before—in the fourth, a woman and her infant, born two days before; and the only space between the four beds occupied by a tinker, hard at work.”‡ “The black-hole of Calcutta, in which men were stifled,

* Chambers's Information, i. 672.

† Meliora, ii. 69.

‡ Report of Sanitary Commission (1842), p. 362.

has been described, and the hold of a slaver has been described ; but no description *has*, because none *can*, be given of the interior of a low Edinburgh lodging-house. It defies the graver of Hogarth, the pencil of David Scott, so familiar with night-mare horrors, the pen of Dickens, and the tongue of Guthrie !” *

Although nature is bountiful, she is also sternly just ; her laws cannot be infringed with impunity. “She sometimes vindicates these, and, in doing so, gives us emphatic lessons. What is an epidemic ? It is neither more or less than this :—Nature doing what, in virtue of her unchanging and unchangeable constitution, it is necessary for her to do. Men are not constituted like bees, neither have they the nature of swine ; when men hive like bees, and wallow like swine, nature interposes : she reduces their number ; she clears away what is an offence to her. That is the meaning of an epidemic. I neither wonder at nor complain of typhus : it is a necessary effect of a specific reasonable cause ; but I do wonder at men permitting the cause or causes to exist.” †

Filth and filthy habits are phrases too general, perhaps, to descant upon. Still, as there is a difficulty in getting more special terms in many cases operating against the health of towns, they may be allowed. Not to assume anything on such an important subject, let me quote a case in point, perhaps an extreme one. Dr. Combe tells us, that in St. Kilda, in 1838, eight out of every ten children died between the eighth and twelfth days of their existence. The children of the clergyman, however, all survived, and were all healthy. The cause of the fearful mortality was clearly traced to the filthy habits of the people, one of which was storing manure in their huts through the winter, which they carefully laid out on the floor, “and trode under foot, till it accumulated to the depth of several feet.”

A deficiency, or total want of drainage and sewerage, militates powerfully against the health of towns, and in some towns, and on some soils, more than others. For some reasons a clay soil is the most innocent, for the evil lies on the surface, and flows off, while a sandy soil for a time absorbs the filth, and when completely saturated gives it off in noxious gases. These are unpleasant details, but they are necessary ; and to know the evil is generally half the cure.

* “Day and Night in the Wynds of Edinburgh,” by George Bell, M.D.

† Dr. Bell, in *Meliora*, ii. 66.

It is difficult to condescend upon, and lay hold of, the real nature of the malaria which springs from decayed animal and vegetable matters, and which deficient drainage allows to arise. But, although chemists may have failed to analyse it, or to give it a name, a noxious and pestilential agent it continues to be, and disgusting to all but those whom long usage has habituated to it. "All decaying animal and vegetable matters give off during decomposition fetid and deleterious gases, which in the end tell as fatally on the human constitution, as does the bite of a viper, or the insidious poisons known to the chemist." Let us here acknowledge the wisdom, which has so often given to poisonous gases disgusting smells. These smells afford great protection to health, although those constantly surrounded by them get habituated to their presence. There are, however, some deleterious gases which are inodorous, and so all the more dangerous; and in some cases the bad smell may be destroyed while the real enemy remains.* The effects of this malaria upon the system are well known—loathing and nausea—depression and craving for stimulants. The evils of town life, as formerly remarked, lead to intemperate habits in the poor, which again perpetuate dirt and disease. Those interested in the cause of temperance could not take a more effectual mode of carrying out their blessed reformation among the poor, than by instituting a crusade against filth and foul air.

Medical authorities are agreed that *damp*, whether in the general atmosphere or in the building inhabited, is a sure cause of fever. The neighbourhood of marshes, and low-lying ground, is generally haunted by typhus or other similar shapes of fever. Cholera, too, "has ever shown itself most fatal in the neighbourhood of rivers and marshes; and the able Report of Mr. Farr clearly demonstrates, that in London the mortality from cholera bore an exact arithmetical ratio to the height of the districts above the level of the Thames: the higher above the level of the Thames, the less was the mortality from the disease." †

Indispensable to health is *Light*. We can all appreciate such a rule applied to vegetable life; we have noticed the sickly pale-green plant in the cottage window, stretching its leaves imploringly to the light; and applied to animal life the principle is equally true. And

* "Laws of Health," by the Rev. J. W. Mailler of Huntly.

† Encyclopædia Britannica, (new edition,) voce "Cholera."

yet, there is many an apartment, in the wynds and closes of our towns, which the sun's rays, in all its circuit, never reach. Many of our fellow-beings are buried alive in cellars which do not pretend to admit light but by the door; hence the pale and sallow complexions of many of the poor, as well as of those whose callings detain them much within doors. One example of the influence of light on health will suffice:—In an extensive barrack of St. Petersburg, the cases of disease on the dark side of the building were found to be as three to one compared with those on the light side. We cannot consider this point without congratulating ourselves on the abolition of the late obnoxious tax upon window-lights.

Need I do more than merely refer to a deficiency of pure water as a cause of much disease in towns? And let me, as shortly, point to the use of intra-mural over-crowded graveyards as inimical to the public health, as well as repulsive to every sense of decency. The sulphuretted hydrogen gas, generated in the decomposing of animal matter, and exhaled from every over-crowded graveyard, is most pernicious to health. The revelations of the London graveyards are appalling but instructive.

Let us now turn to another branch of our subject.

It is painful to contemplate idleness and vice, with their dire train of dirt, disease, and death. But more sad it is to see honest industry dogged by the same sad retinue. It is painful to see the slave of vice dallying with his own destroyer, but more painful to watch the parent of a dependent family inevitably bringing himself to death for the maintenance of that family; and, most sad, most painful of all, when we know that the deadly influence of his calling might be avoided, were it not for the tyranny of habit, prejudice, and selfishness. I refer, then, to some of the trades pursued in towns, as great causes of sickness and mortality. By their ignorance and thoughtlessness, men have increased an hundredfold the weight of the original doom, "In the sweat of thy brow shalt thou eat bread."

The lives of artizans are very much shorter than those of the classes known as tradesmen and gentry. This is in a measure to be accounted for by the fact, that the mortality lists include under the head "artizan" those who have no lawful calling. Take the case of

London : there, in the Whitechapel Union, the table, in 1842, stood thus :—

Average lifetime of Gentry and Professional Men, and their families, 45 years.

Average lifetime of Tradesmen and their families, 27 years.

Average lifetime of Mechanics, Servants, Labourers, and their families, 22 years.*

Your time only allows me to make a few remarks on the fatality of trades, and that merely by way of example. Indeed, I could point to evils resulting to the health from every trade and every profession, but shall only speak of some of those where the evil is more prominent, and at the same time not irremediable. Some of this class of evils are the consequence of badly ventilated workshops, others of the work itself. The former occasion nervous depression ; their day's labour leaves the workers languid and worn out. From the want of fresh air, the great and only natural stimulant, the spirits are flat and the mind listless. The seamstresses of London, from confinement rather than toil, are forced to drink tea frequently, to maintain the nervous power. This also accounts for the fact, that some trades are more liable to fall into intemperate habits than others.

Workers in factories have to contend with many enemies to health, even laying aside the risks to life and limb, from ill-fenced machinery. In cotton-works there is the impalpable flue floating in the atmosphere carried into the lungs, and deposited there, the hot and foul air, the din of a thousand wheels, and, amidst all this, the constant maintenance of a standing posture. Or step from the power-loom factory to the hand-loom weaving shop, and how great is the change !—from dry heat to damp coldness, the cause of many ailments. Or take the trade in which this county has such an interest, the miner's. Those employed in it soon grow old in looks, but very seldom in reality. The causes of the shortness of their existence are obvious, even putting out of account the risks a miner runs from explosions of fire damp, and falls from the roof. He has to combat with the extremes of heat and cold and damp, and must inhale the subtle coal dust which forms a deposit in his lungs, and most surely causes disease. After death the lungs of colliers are, on examination, often found

* Report of Sanitary Commissioners, (1842.)

ulcerous, and always as black as ink. Cutlers are almost invariably victims to their trade; or rather were, for the application of a magnetic respirator protects them in a great measure from the effects of the iron-filings and dust, which, floating in the atmosphere, used to be carried into their lungs. I have not the means of knowing how the instrument referred to affects the original statistics, but those of that branch of the trade known as dry grinders used only to live from 28 to 32 years, while the wet grinders lived 40 years.

It is an appalling fact, but a fact notwithstanding, that "the tailors of London, by their own ignorance and mismanagement, are more liable to premature mortality than a like number of soldiers and sailors employed in the general defence of the country,"* and that at the age of fifty, a London tailor is considered superannuated. Says Mr. Chadwick in his sanitary report, "It is evident that the average period of the working ability of that class might be extended at least ten years by improvement as to the places of work alone;" and these remarks do not only apply to the tailors of London.

So much for the trade whose art adorns the man. Would that anything that could here be said, might abate, in the least, the sadness of the lot of that immense number of the gentler sex who ply the needle! All that words can tell of the sufferings of the oppressed needlewomen has been often and pathetically told; but would that all our lady-friends, when, in the brilliant arena of the ball-room, they tread with light hearts and feet as light, robed in the trophies of the needle's art,—would that they thought of the sleepless midnight hours, the throbbing temples, the sunken heart, the straining eyeballs, and the struggles between life and death, that, besides the material fabrics, went to the formation of these gorgeous dresses. Lady! what an appeal do those graceful robes make to your tender heart! Might not the airy step which has carried you so lightly through the dance, carry you to the rescue of many of your sex, many as pure, as tender, as sensitive as yourself, and decide the brief strife between the claims of life and death, of innocence and vice. But it is not only at the hand of their own sex that these poor creatures suffer; for,

"O men with mothers dear,
O men with sisters and wives,
It is not linen you're wearing out,
But human creatures lives!"

* Chambers's "Sanitary Economy," p. 246.

It may not be generally known that the making of glazed visiting cards is fraught with most disastrous effects to the operatives employed upon them. The glazing matter used is white lead—a deadly poison, readily absorbed into the system, and, unlike other poisons, accumulating there from day to day. The same cause, the free use of lead, renders the trade of the house-painter an unwholesome one: the painful disease known as the dropped hand, the muscle of the thumb and the calf of the leg shrinking up, and other disorders of the system, are the effects on many of this trade.

Masons and carpenters inhale minute particles of the materials on which they work; hence the strong plea for the moustache, which some time ago seemed to be coming into general use. Did time allow, I could enumerate many other trades and professions that are prejudicial to health: indeed, thoroughly to exhaust this part of the subject, would be to enumerate the whole catalogue of manual occupations, as well as professions.

I might also speak of many practices and customs observed in towns, and prejudicial to health, but need not.—You do not, for instance, require to be told, that it is prejudicial to the health and comfort of a family to allow pigs to live in the same room with them! or to wash and dry clothes, cook, eat, work, and sleep in the same apartment. The former of these practices is sometimes to be met with, and the latter in the house of almost every artizan.

Your attention has been already drawn to the awful mortality among infants in towns, and we have since traced some of the evils from which they are mercifully snatched away. It still remains to direct you to the sad lot of many children who have been carried through the diseases and dangers of infancy. I refer to the too early employment in trades of children of tender years. You are aware that the Legislature has forbidden this so far as factories and collieries are concerned, and that for this, and many a similar work, that peerless peer, Lord Shaftesbury, has got the blessings of humanity upon his head. But, in a separate form, the evil is every day perpetrated in our towns and under our eyes with the direst effects on the bodies and souls of the helpless children. In this place I have seen children, eight or nine years of age, sitting from seven o'clock in the morning till eleven o'clock at night, with few and short intervals, at, or rather under, the tambouring frame;* and, when trade is good, such cases are every day

* Used in lace working.

to be found. Questions of mind and education apart, is such a thing Christian? is it human? When Thomas Hood took up the case of the oppressed needlewomen, and plaintively sang the "Song of the Shirt," a cry of just indignation (though perhaps little more) was heard through the length and breadth of the land. Would that we had a Tom Hood here! I would plead for these poor creatures in Mrs. Browning's pathetic words:—

"Do ye hear the children weeping, O my brothers,
 Ere the sorrow comes with years?
 They are leaning their young heads against their mothers,
 And *that* cannot stop their tears.
 The young lambs are bleating in the meadows;
 The young birds are chirping in the nest;
 The young fawns are playing with the shadows;
 The young flowers are blowing toward the west;—
 But the young, young children, O my brothers,
 They are weeping bitterly!
 They are weeping in the playtime of the others,
 In the country of the free.

 And well may the children weep before you;
 They are weary ere they run;
 They have never seen the sunshine, nor the glory
 Which is brighter than the sun:
 They know the grief of men, without his wisdom;
 They sink in man's despair, without its calm,
 Are slaves, without the liberty in Christdom,
 Are martyrs, by the pang without the palm."

The *adulteration of food* tells upon the health of dwellers in towns. In the country, food is more simple, and much of it is home-made; while, in the town, the poorer classes are altogether dependent on the honesty of the manufacturers and retail dealers. This assertion is verified by the late fearful revelations on the subject, made through the pages of the *Lancet*. Some of the commodities supplied to the poor are sold to them at prices which, if genuine, could not remunerate the retail dealer. To quote the words of Viscount Gode-
 rich,—“It is among the cheap dealers, who supply the food of the greater proportion of the people, that these frauds chiefly prevail, and the more dishonest a man is, the cheaper he is enabled to sell. Now, while the immoralities of many traders fall upon the whole community in greater or less proportions, the poor, and especially those dwelling in towns, have no means of escape.” *

* *Mellora*, i. 76.

Any sketch, however brief, of the evils affecting the health of towns, would be imperfect if it left unnoticed the *demoralising* effects of filth, and of the other causes of unhealth. Whether filth itself is more a cause or an effect of poverty of morals, may be an open question, but still its effects upon the morals of a community cannot be denied. They are very conspicuous in the apathy which the part of a community living in material pollution evinces about life itself; for a high regard for health and life is a high mark of civilisation, while a disregard of both has always been characteristic of barbarians. The creatures who haunt the closes and wynds of our towns are content to live a sullen, stagnant life, without one of the real comforts or amenities of civilized society,—with none of its loves, aspirations, or hopes, and to die in the same way:—all life long there is a crushing weight they cannot define, bearing them down and keeping them under. In appearance, situation, and character, they may be likened to animal fungi. And then, all the senses being always conversant with filth, and nothing but filth, what will not the mind become? We have been used to look upon beauty and order as elevators of the mind: as surely, more surely I may say, is impurity, although external, a demoralizing influence; for the downward progress is also here the easiest.

The class to which I refer, the lowest stratum—the sediment of society, having always associated with disease and death, regard them as familiar things, and in many cases look upon the latter as their best friend. In trades injurious to health, added to the disregard of death, there is exhibited a spendthrift spirit,—of money as well as of life, so that the men of these trades, although the best paid, are generally poor, and careless of the substantial comforts of life. I shall mention the mining population:—they have good wages, are generally well and often finely clothed, feed well and eat largely, but beyond that, they care for few domestic comforts; they shew an awfully serious application of the resolution—“Let us eat and drink, for to-morrow we die.” The grinders of Sheffield are another instance:—when trade is good with them, they keep a pack of hounds, hunt them, and drink champagne. The study of our subject in this light is fitted to cause much pain. The untold sufferings, the teeming mortality lists, the widowhood, and the orphanage, that meet us almost everywhere amongst the dwellings of the poor, are far from being the most melancholy scenes in the sad picture.

If you wish to see and understand all the horrors of the case, you must remember who the sufferers are,—living, intelligent, immortal, and responsible creatures. I do not blush to ask the tenderest, the most sensitive, of my hearers, to turn over the subject in her or his own mind. To talk of morality in a low lodging-house for example!—the word can only be used in mockery there. And let the fond mothers among you, the affectionate sisters, and the noble-hearted brothers, turn the mind's eye from that centre of all affections—*home*, where all thoughts but the purest, all deeds but the kindest, are out of place, to many a dwelling (I cannot call *them* homes) tenanted by the humble but honest artizan it may be. One room is hall, kitchen, dining-room, and bedroom;—the toils of the day are over, and, one after another, parents, brothers, and sisters,—six or eight or ten come in, both sexes and all ages huddled together. There may still be morality, but is there decency? can there be modesty? There is a proverb that says “home is still home be it ever so homely.” But that is not the case. Where, in such cases as I have referred to, are the bright memories, the pure joys, the warm affections, and the entrancing hopes that cluster round that sweet word “HOME.”

But I cannot leave this part of my subject without referring to another, indeed, the primary cause of the unhealthiness of towns, for as yet I have only spoken of one class of causes, namely, the material. To the moral cause I must also refer, in order to account for something I have to advance by way of remedy. In the reeking exhalations of impurity, we have detected the too certain causes of disease and death. But let us look deeper, as all true sanitary reformers must, and even from amidst the great light of science, humbly admit, that “affliction cometh not forth of the dust, neither doth trouble spring out of the ground.” The material causes of human misery lie deep and wide, but the moral causes lie all beneath,—and therefore is it that all real and lasting sanitary reform must be subservient to, and based on moral reformation.

And is the working out of this moral reform inconsistent with the material reformation which I have also urged? Surely not! But there is an inconsistency in those who would work the one without the other. Need I notice the reasoning of those materialists and secularists, who, denying the doctrine of a special providence, refer everything to material causes? and, believing that there is no “evil

in the city and the Lord hath not done it," is it wrong to attempt the removal of the mediate cause? Certainly not; for the proper remedy properly applied, as I hope to show, is itself an object of the all-wise Creator in sending the evil.

And now to conclude this part of my subject. I have attempted to sketch some of the evils affecting the health of towns. I feel that I have been able at the best to give but an inadequate view of these; but we have been able to lift at least a corner of the curtain, that covers much that is revolting in the self-imposed or involuntary sufferings of many of our kind. If I could induce any to raise the veil higher, to enter in, and to combat the selfishness, the prejudice, and the inhuman thoughtlessness, which cause these sufferings, I should be happy indeed.

It is a relief to pass from the sickening details which have hitherto engrossed our attention. Let us not, however, turn away in apathy or disgust, but rather let us rise from a contemplation of the sad picture, to a search for the much-needed REMEDY. I may have failed to impress your minds with a sense of the awful position of untold thousands of our fellow-subjects. If so, the fault is mine. It cannot be that those who have seen and studied the actual scene which I have tried to paint, and who retain any degree of feeling, can remain unimpressed; and should there be any who regard the representation as exaggerated, let them see and judge for themselves. But no! it is not overdrawn. However anxious some may be to forget it, the painful and alarming nature of the case cannot be gainsaid. The gangrene may be skinned over by fair appearances, but it is striking deep and wide. Tens of thousands of the dwellers in our towns, and these mainly of the industrious poor, are yearly sickening and dying *without any necessity*. And this is not all, nor is it the worst; for, material pollution and moral degradation are going hand in hand, enthralling whole crowds of immortal and accountable fellow-creatures,—ignorant of the laws of God, forgetful of the laws of nature, and careless of the laws of man; not sorrowing, for they are past that; nor yet ashamed, for they have outlived that. A desolation, deep and dark, is spread around and above a large section of our civic communities. Under the shadow of our glorious institutions, thousands cursed with a fatal contentment, are wilfully wallowing in their degradation. The “immortal sewerage” of our towns is stagnating and stinking in the bright sunshine of our national prosperity. But, although the fever is running high, the case is not yet hopeless. The poor sufferers for whom I plead may yet be rescued. The callosity that is encircling their hearts may yet be broken up, and their life-current again flow onwards in healthy freshness. Let us, then, go to the study of the remaining portion of our subject with this assumption, which our past investigations amply justify, that the evils we have been hitherto considering are not inevitable, but *unnatural* and remediable. I say unnatural, for we

do wrong in calling all death natural but that which results from violence.

That the present state of the health of towns is far from being irremediable, general history affords undoubted evidence. For although, when we look before us, the work seems almost all to do, still, when we look back, we see that it is not so. And, ungrateful it would be in us, not to acknowledge the progress of sanitary reform, especially within the last few years.

We have no plagues now ; for the modern epidemics cannot be said to answer to that awful term. Even Cholera, however appalling, cannot compare with those visitations which in old times repeatedly swept the world,—far more than decimating the towns and cities. These need only to be referred to, to awaken in your minds feelings of thankfulness for the gentleness of the social dispensation under which we live. “If, throughout England, the Cholera of 1832 had been one-half only so fatal as the black death of 1349, or even as several of the later epidemics, the framework of society would have been loosened, and the empire in danger of being broken up. The utter depreciation of property, terror, despair, and a total abandonment of all social ties, would have been the consequence.”* But, awful as these visitations were, history and science both assure us that they were but the natural consequences of the then state of things.

Time has thrown round the persons and scenes of antiquity a halo of romance, which, while attractive in itself, obscures the real state of social life then existing ; and, were it not for such a good purpose, it would scarcely be fair to break through this obscurity. When we read of the baron of olden times keeping holiday in his ancestral halls, we do not associate the festal scene with all its accompaniments :—the rude, unwashed retainers ; the rush-strewn floor ; the soot-clad walls ; and comfortless fireside. But here I must pick my steps warily, for I shall be sure to offend if I quote my authorities too freely. An old writer, speaking of these dwellings, tells us, that “as to the floors, they are usually made of clay, covered with rushes that grow in fens, which are so slightly removed now and then, that the lower part remains for sometimes twenty years together, and in it a collection of beer, scraps of fish,” and, adds the writer (after

* Dr. Laycock, quoted in *Sanitary Economy*, p. 119.

mentioning some things not to be spoken of here), "other filthiness not to be named. Hence," he continues, "upon change of weather a vapour is exhaled, very pernicious, in my opinion, to the human body."* We will concur! You may notice that this is a description of an English home. It may serve as a set-off to the aspersions thrown out by a celebrated modern historian against the Scotch.

Of the old military cities, such as Edinburgh, the limits of which were circumscribed by their walls, the filthiness was extreme. Many of you will be cognisant of details contained in old histories, which it is unnecessary to repeat. We may form some faint notion of the real state of Edinburgh, taking it as an example of the whole, when, in an Act of the Privy Council of 1619 (whose notions on sanitary reform could not be very enlightened), such expressions applied to it as these,—"*filthie and uncleane, detestable and odious in the sight of strangers, who, beholding the same, are constrained with reason to give out many disgraceful speeches against this burgh, calling it a most filthie puddle of filth and uncleanness, the like whereof is not to be seen in no part of the world.*" The buildings of these times were exceedingly deficient in sanitary arrangement; the apartments were small and badly-ventilated, and many of the houses were built of wood, such as are still to be met with in some old towns. Now, all this sufficiently accounts for those visitations of epidemics which took place three or four centuries ago.

The city of Geneva may be taken as an example of the improvement of the public health,—its mortality-lists reaching farther back than those of any other community. From these records, it appears, that towards the end of the seventeenth century the average duration of human life was not quite twenty years; a century later it exceeded thirty-two years; and now it exceeds forty-five years. In the same city, at the first date we have referred to, one-half of the children died before completing their sixth year; in the course of another century one-half survived their twelfth year; and a hundred years later one-half saw their twenty-seventh year;—so steady has been the improvement of the health of Geneva. Of our own country, Mr. Macaulay, in his History, says, "some frightful diseases have been extirpated by science, and some have been banished by police. The term of human life has been lengthened over the whole kingdom,

* Malcolm's "London."

and especially in the towns. The year 1685 was not accounted sickly, yet in that year 1685, more than one in twenty-three of the inhabitants of the capital died. At present only one inhabitant of the capital in forty dies annually. The difference in salubrity between the London of the nineteenth century, and the London of the seventeenth century, is very far greater than the difference between London in an ordinary season and London in the cholera." * About one hundred years ago, 740, of every 1000 children, died before the end of their sixth year ; now (as we have already seen) only about 315 die before attaining that age. About a century ago, of the children received into the London hospitals, 2,690 in every 2,800, or twenty-three in every twenty-four, died before they were a year old. This fearful mortality was the result of over-crowding, bad ventilation, and deficient aliment ; — and, on order being taken to have the children sent to the country, the mortality fell to 450 in 2,800.†

Some philosophers, Condorcet amongst others, have maintained the theory, that through a knowledge, and the use, of ordinary means, the period of human existence may be increased to an unlimited extent. This none of us will believe, but we are justified in expecting, from past experience alone, that the period of human life may be greatly lengthened ; and, more than this, we are stimulated towards the acquisition of this desirable end by all the success of past reforms. During the last century, at least ten years have been added to human life. Considering the greater present progress of science, are we not justified in expecting greater changes and improvements during the present century ? That greater cleanliness, better homes, and improved social manners, have wrought this great change, is abundantly evident from the result of these in particular places, to enumerate any of which at present, my limits will not allow me.

Permit me, however, to refer to what has been done in the case of *Prisons*. The description of the prisons of this country and the continent, when John Howard and Elizabeth Fry entered on their work of reformation, is revolting in the extreme. Baker, in his "*Chronicles of the Kings of England*," tells us, "that once when the judges sat at Oxford, and one Jenks, a bookseller, was questioned for speaking opprobrious words against the Queen, suddenly they

* Macaulay's History, vol. i., p. 421.

† Chambers's Information, vol. i., p. 671.

were surprized with a pestilent savour, whether arising from the noisome smell of the prisoners, or dampness of the ground, is uncertain, but almost every one there present, within forty hours, died, but women and children." The prisons were not only nests of the vilest immorality, but hotbeds of disease—constantly haunted by prison fever and other contagious ailments. Prison fever is now unknown, and the health of prisons far excels the health of that class from whom they are tenanted, out of jail. In some prisons, the prisoners are weighed at their entrance and when they leave, and, on the average, are found heavier when they leave confinement. This speaks volumes; but it implies a heavy reproach upon the state of things, where the advantages of science are so liberally lavished upon the criminals of the community, and denied to its industrious and honest poor.

The history of our *Navy*, both military and mercantile, affords another instance of what has been attained in the way of sanitary reform, and an earnest of what yet may be done. We, of these times, can form no idea of the fearful condition of our ships a century ago. As an example of this may be mentioned the fate of Admiral Hozier, who, in 1726, sailed to the West Indies with seven ships of the line. He buried his ships' companies twice, and died himself of a broken heart. The mortality in the navy, from disease, was double the amount of the deaths in battle. The scourge which destroyed whole ships' crews was scurvy, with its various concomitant diseases: it is now almost unknown on shipboard, although, since it was banished thence, it has been more common on land. The mercantile marine service, which has been slowest to apply the science of sanitary reform, is now put under stringent legislative regulations.

But I must not longer detain you from a consideration of those remedies which, in time past, have wrought such great improvement upon the public health, and from which we may reasonably expect even greater results in the future. I will speak first, of the remedies themselves, and then, of the agencies by which they are to be applied. And first, because first in importance, I will place the promotion of cleanliness in person and habitation. In this work, as in every branch of sanitary reform, we have many enemies besides filth to contend with. Before we can reach the actual source of the evil, we must encounter and sweep away many obstacles: the chief of these are popular prejudices, ignorance, private whims, and selfishness.

Prejudice is a stubborn enemy to sanitary reform. In his Tract upon "Improved Dwelling-houses," Mr. William Chambers relates the case of a family removed by their landlord from their old hut to a neat cottage. To the dismay of the landlord, who wished to benefit his dependents, he soon found the windows of the cottage built up with turf, a hole opened in the midst of the roof, and the fire placed in the middle of the floor.

At this stage some delicate questions suggest themselves, which should be noticed before proceeding further. These chiefly refer to the rights of property.—How far should the legislature interfere? Now, one answer will suffice for this, and many questions such as this:—that no one has any right to use or hold his property, or himself to act, in such a way as may be prejudicial to his neighbour's health. To carry out this rule we need not interfere with the real liberty of the people. Indeed, sanitary reform vindicates the true liberty of the subject; and while the people are learning their privileges, the Legislature should defend them. But, how slow have all our Governments been so to do, or to recognize, reward, and apply those great discoveries which have done so much for humanity. A more deadly rifle, or a more murderous gun, is invented: the Government buys up the invention at any price, and the inventor is decorated and idolised. A humane physician discovers a means which will save, as it has saved, millions of lives: his invention is neglected, and he himself forgotten. Another discovers an agent which is every day soothing the pain of hundreds, and saving the useful lives of as many more; and he goes unrewarded.

If all classes are to enjoy the luxury of cleanliness in person and home, they must all be provided with an unlimited supply of pure soft water: common sense teaches us the essential importance of cleanliness to health; and, for the sake of cleanliness, water should be carried through every dwelling, and constantly laid on at high pressure. When the skin of the human body is not frequently washed, its natural functions are deranged: the perspiration is checked by the deposit of moisture being allowed to remain on the skin, to which get added the dust and dirt of the workshop, and the impurities of a town atmosphere. Many colliers and miners, for instance, never wash any parts of their skin but what are exposed to view, and under a fine black coat, many hide a skin as black.

Had time permitted, I should have spoken more particularly of those physiological laws which, for health, demand personal cleanliness. The perspiration of the body is thrown off by means of the pores of the skin. These are very minute—3,528 have been counted in a square inch in the palm of the hand. They are about a quarter of an inch long, and the length of pores over the body of a full-grown man is nearly 25 miles. We can understand the idea of breathing from the lungs; but in a healthy and cleanly person there goes on a constant, and, for health, an equally necessary process of breathing from the skin.

We cannot hopefully expect that all classes of the community may, in their own homes, have the means of regularly cleansing the body; although, where even the poorest aspires after cleanliness of person, he will devise means to achieve it. But we hope to see, in every town, public baths, where the working man, for a trifling consideration, may enjoy the necessary luxury of frequent and complete ablution.

Next to personal, stands household cleanliness,—for they must always go together. On this point I quote the words of Dr. Southwood Smith,—“A clean, fresh, and well-ordered house exercises over its inmates a moral no less than a physical influence, and has a direct tendency to make the members of the family sober, peaceable, and considerate of the feelings of others.” The more straitened the family accommodation is, the more particular should the tenants be to have it always clean. Some of my audience may have visited the celebrated “Dutch Paradise,” Broeck,—perhaps the most cleanly village in the world. All Holland is proud of it; and the Dutch are everywhere celebrated for their cleanly habits. It stands about six miles from Amsterdam, and more resembles a congeries of toy houses than a veritable village. It is an offence so much as to spit upon the streets, and whenever a leaf falls it is gathered and carried away. The people are not allowed to smoke upon the streets, it is said, lest the ashes of their pipes should defile them. The outsides of the houses, which are all of wood, are ever gleaming with fresh paint and varnish: some of the footways are of beautiful mosaic work, without a speck of dust. But the habit of cleanliness is developed to a ridiculous degree. The front doors of the houses are only opened at baptisms, weddings, and funerals, and each has two kitchens—one for use and the other for show. Indeed, each house has an apartment kept for the sole purpose of being cleaned.

Next, but equal in importance to cleanliness is abundance of pure fresh air. That we enjoy health it is indispensably necessary that we breathe nothing but pure air. Anything else is always more or less poisonous. The air we inspire should be pure, while the air expired must be unwholesome, and if again taken into the lungs prejudicial to health. Nature teaches this; but the importance of ventilation is, in practice, denied by a majority of the dwellers in towns. It is told of the late Dr. Gregory, of Edinburgh, that he sometimes began his prescriptions to his poor patients by knocking his walking-stick through the window. It is hardly necessary to quote examples of the evil results of deficient ventilation. In the end of last century, in an hospital in Dublin, badly-ventilated, there died in four years 2,944 children out of 7,650; but after freer ventilation the deaths in the same period of time, and in a like number of children, amounted to only 279. It is very difficult to separate the notion of pure air, in the minds of many persons, from the idea of cold; consequently, many of the houses of the working classes, in winter, possess a temperature higher than those of the more opulent:—the heated, oft-breathed, poisonous air, mingled with the fumes of soap-suds and coal-smoke, is jealously confined, and every aperture that might help the ventilation carefully stopped. In many factories, and in most workshops, the ventilation is very deficient; so deficient as to indicate a sad callousness and ignorance on the part of employers and employed. Free air costs nothing: it is God's great common gift to rich and poor; and yet, such is the stupid indifference of the sufferers, that deficient ventilation is allowed, from year to year, its unnumbered victims. We have all read with horror of the black-hole of Calcutta,—a place 18 feet square, in which 146 men were imprisoned for one night, during which time 123 of the number died. There are thousands of black-holes in our land, where tens of thousands are working for their daily bread with a like fate, only a more protracted suffering.

There are, and even before Government took up the sanitary question there were, some signal instances where due regard had been paid by millowners and other employers to the comfort and health of their fellow-men with great success, and with the reward, even the pecuniary reward, which employers will always have in observing and discharging their duties towards those entrusted to them. An example of this is Catrine Mills, in Ayrshire. At these works, are

employed about 1,000 persons. The mills are well-ventilated and carefully kept. Many of the dwelling-houses were purchased from the proprietors by the workers, who spend their leisure in their gardens. The workers, "more especially the females, are not only apparently in possession of good health, but many of them are blooming; as unlike as possible to the pale, languid-looking females too frequently to be found in similar works in great cities." And this is not all, for, adds our reporter, "it is said, that there is not a single person in the village of a bad character."—"Indeed," he continues, "the only person in the village who has reason to be downcast is the medical man, who complains that he has nothing to do." Mr. Hill, inspector of prisons, sometime ago wrote: "Notwithstanding what has been said on the subject of factories, I have no hesitation in declaring, that I believe that the workpeople at Catrine, New Lanark, and other similar establishments, form some of the healthiest and most moral communities in the world."*

Were people impressed with the necessity of free ventilation in dwelling-houses and places of work, means would be taken to secure the necessary supply. Many contrivances which we have adopted for our comfort, actually militate much against both our comfort and our health. Thus, it is very unwholesome to go to sleep with the doors and windows of our bedrooms close, and our bed-curtains drawn closely round; because, by doing so, we prevent the free circulation of fresh air. For the same reason, although I need scarcely say it, it is dangerous to have the head or face covered up while asleep.

The third remedy for the deficient health of towns, of which I would speak, is *Drainage*. I do not mean isolated attempts to drain and purify particular spots,—each proprietor his own engineer and artificer,—for that will but aggravate the evil in the end; but a thorough system, carried out on scientific principles, and on a liberal scale. Without this, personal and domestic cleanliness and perfect ventilation will be inoperative. This, and everything that requires to be done for the health of towns, ought to be done liberally. Look away past the paltry consideration of the pounds, shillings, and pence, to the stern and crying necessities of the case, and rivet your eye upon the sure issue,—the life prolonged, the health insured, the muscle strengthened, the heart lightened, and the soul upraised.

* Report on Sanitary Condition of Working Classes (1842).

Ring out old shapes of foul disease ;
 Ring out the narrowing lust of gold ;
 Ring out the thousand wars of old ;
 Ring in the thousand years of peace !

Ring in the valiant man and free,—
 The larger heart, the kindlier hand ;
 Ring out the darkness of the land,
 Ring in the time that is to be !

The second of six advices, given by Dr. Samuel Johnson to a friend, for the restoration of health and the prolongation of life, was, “Do not think about frugality; your health is worth more than it can cost.” This sentiment recommends itself to common sense, and in this liberality lies the truest thrift. I could wish to see the subject of sanitary reform placed on the broad basis of philanthropy and religious principle; but it recommends itself on the ground of monetary economy as well.

But to return; speaking of drainage, Dr. Southwood Smith says,—“In every district in which fever returns frequently and prevails extensively, there is uniformly bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accumulation of filth.” A complete system of drainage must include house drains, both for carrying off the natural dampness of the soil, and the refuse from the houses. The great desideratum in the construction of drains is, that they should keep free from obstructions, and carry off water at a slight inclination. For this purpose, tubular pipe-drains are preferred, those pipes made of glazed material being best, as preventing the escape of poisonous gases. By connecting the rain water pipes of the houses here and there with the drains, the latter will be ventilated, the foul air being carried to the tops of the houses, and so passing away harmless. The day is, perhaps, not very far distant, when enterprising agriculturists will refund to our police commissioners all the expense of drainage and sewerage,—increasing at once the health and wealth of the towns, and augmenting the riches of the country. In contemplating the subject of drainage, we are again powerfully impressed with the indispensable need of a copious water supply. Before leaving this point, and in order to substantiate what I have said of the importance of drainage to the health of towns, from amidst many examples I will quote that afforded by the comparison of two small, contiguous, and, in other respects, very similar towns in England:—

In 1811–21, the deaths in Beccles were 1 in 67, while in Bungay they were 1 in 69; but
In 1831–41, the deaths in the former town were 1 in 71, while in the latter they were 1 in 57.*

The secret of the change is, that between 1821 and 1831 Beccles was drained, while Bungay remained as before, or rather got worse.

I presume there are few medical men who could not corroborate this testimony of a medical officer in England: "I may venture to add," he says, "the following observation, after twenty-six years practice in this neighbourhood; that I have scarcely ever had a case of typhus fever in a malignant form, without discovering some stagnant drain or overcharged cesspool, or some other manifest cause of malaria, in the immediate neighbourhood of the patient's residence." It is the universal experience that the health of those parts of the country, where waste lands have been reclaimed by draining and otherwise, has been proportionally improved.

Allied to a proper system of drainage is an efficient system of street cleansing. The evils arising from filthy streets, although they should neither be incumbered with decaying animal or vegetable matter, are not slight. They operate much against home cleanliness, as well as directly against public health.

We have already seen how prolific are the low lodging-houses of the poor, of disease and immorality. Occasional legislative interference has proved so beneficial, that they have now been made the objects of the permanent care of the judicature. Much has been, and much may yet be done, by the promotion of model lodging-houses by philanthropic persons and societies. The establishment of these institutions has been more attended to in England than in Scotland, and with the very best results,—results far beyond the most sanguine hopes of their promoters. The statistics proving the advantages of model lodging-houses are most gratifying. I have taken them from a Parliamentary Report on the subject.†—During the last visitation of cholera in London, the deaths from that disease in the model lodging-houses, belonging to the various societies, were at the rate of 27 in 10,000, while in the Potteries, Kensington, the deaths numbered 250 in 10,000. Farther, in the year 1853, there

* Chambers's "Sanitary Economy," p. 141.

† Report on Common and Model Lodging-houses (1855.)

were in London, lodging-houses registered by the police and under police regulations, capable of accommodating 30,000 persons; and, during the year, only *ten* cases of fever occurred in these,—almost an incredibly small amount of sickness.

But time will not permit me to say much more about the remedies demanded by the present state of the health of the towns. I have spoken of the most important, and can only name some of the many remaining.

A *Public Park*, for the recreation of all classes, every town should have. As healthy lungs are necessary to the well-being of the human body, so should every town and city have its lungs, one or more. This leads me also to refer to the necessity for having opportunities of timeous *recreations* and amusements put within the reach of the inhabitants of our towns; recreations, which, while they improve bodily health, do not offend against man's spiritual nature, and such as will be dictated and directed by an enlightened taste; but their selection, within these limits, should be left to the people themselves. Some countries have foolishly attempted to make the people laugh by law, but with the most pernicious results. In our search for recreation, let us remember that

“The cheapest pleasures are the best; and nothing is more costly than sin.”

To admit of regular recreation, the hours of labour and rest should be well-timed. The nature of the labour must regulate the length of time during which it is to be pursued; but, as an invariable rule it should never trench upon the required rest and recreation. Let the early-closing and Saturday half-holiday movement have the hearty support of every sanitary reformer; and let the sacred obligations and privileges of the Sabbath be preserved inviolate in letter and in spirit: it is the working man's most precious boon—the flood gate that alone now stands between him and an enslaving selfish avarice.

It is desirable that every community should also have an hospital for its indigent sick, to secure the well-treatment of the invalid, and to circumscribe the ravages of disease. The care evinced in this country for the sick, the feeble, and the insane, is a grand testimony to the truth of its religion and the breadth of its philanthropy. “In the year 1856, the deaths in the metropolis were 56,786. Of this great number, 10,381, or nearly one person out of every five who

died in the year, closed his days under a roof provided by public law or private charity."

Respect for the remains of the dead, and care for the health of the living, seem to suggest the propriety of providing a place or places in every town, where the remains of the dead, of those families where house-accommodation for the living is so deficient, might be deposited between death and burial, instead of lying in the over-crowded apartment, being jostled by and contaminating the living. The want of such accommodation is the cause of many a revolting exhibition in the homes of the poor. A friend has described to me his feelings, on finding the remains of the father of a family laid upon the only table in the house, from the margin of which, and from amongst the feet of the corpse, his little ones were eating their poor meal.

I cannot leave this part of my subject without reverting to a topic on which I have already touched. As at every corner of our streets we are assailed by bloated, foul-mouthed *Intemperance*, so are its fruits to be seen in every phase of social degradation. It is an evil which words have wholly failed to describe or pencil to pourtray,—ever preying on the health and wealth, the bodies and souls of our fellow-citizens. And its chief causes are obvious. Let our Churches and Parliaments rise and grapple with it, ere it wholly unnerves the national arm, as it has already covered us with national disgrace.

According to arrangement, I now come to speak shortly of the agencies by which the necessary remedies should be applied. I approach this question with diffidence, for it is one of much difficulty. An error, into which many interested in this work are ready to fall, is, putting too much confidence in the legislative broom, for without other, and more powerful agents, it will avail but little. Much more will be done,—indeed, the sanitary state of our towns will only be made perfect by moral influence, by enlightening the public mind on such matters, by raising the tone of feeling in the breasts of our less fortunate neighbours. Streets and closes may be cleansed by Act of Parliament, but the people *never*.

I would not, by any means, ignore the usefulness of the material agents, if I may so term them. They have a great work to do, and when it is left undone, a heavy culpability; but I look for a time when every one will take part in the work, for his own and the common good, on the *principle* of order and cleanliness, if I may so

express myself. Place a beggar in a palace, with his mind untutored, and his habits unimproved, and he will soon again be wallowing in his filth. "Sanitary reform is not what it appears to be, as seen by the light shed thereon by municipal discussions. This light is very feeble, and moreover it is refracted light. The refracting lens is a financial one. The *yellow* ray only impinges on the object, and a true impression of it is not conveyed to the mind. Money and man are balanced against each other, and man is made to kick the beam. Sanitary reform implies something that a scavenger cannot do, and that a draining committee cannot tell him how to do. Sanitary reform is neither within the reach of scavengers nor their masters. Exposed to the bright, unrefracted light of the sun, it is seen to be a high physiological question—a question involving the never to be forgotten truth, that mind and body are so intimately and peculiarly associated, that the wellbeing of the one is essential to the integrity of the other. The true sanitary reformer has regard to the mind as well as to the body; he is an educator, and all that this implies, as well as a drainer, ventilator, and so forth."*

This is the grand aim of those who would work earnestly in this field. Let the public mind be enlightened on the science and importance of the subject. Let men who would wish to fulfil their obligations to their fellow-men,—men who are impressed with their responsibilities,—come heart and hand to the work, and success will be certain. I have spoken of responsibility:—I mean what I have said; and I little envy the man who thinks he has shaken himself clear of it. Every man is responsible to his Maker and his fellow-men, who keeps his own kind in a state of material and so of moral degradation. The master is responsible who is careless of the comfort and health of his workers, and the rich are responsible who leave the poor in his respect uncared for. "The least part of the responsibility lies on the poor themselves. *They* cannot control it; but it can be controlled, and would be controlled, if these other classes of society who are capable of exercising a remedial influence would only act up to their responsibilities:—one-half of the people who die annually would be saved, were the community only to do their duty, and were social rights respected."

* Dr. Bell, in "*Meliera*," ii. p. 66.

Yet are those homes overclouded with night
 Poverty's sisters are Care and Disease
 And the hard wrestler in life's uphill fight,
 Faints in the battle and dies by degrees.
 'Then let his neighbour stand forth in his strength,
 Like the Samaritan swift to procure
 Comfort and calm, for his struggles at length,—
 Pouring in peace on the Homes of the Poor!

O! there is much to be done, and that soon;
 Classes are standing asunder, aloof;—
 Hasten Benevolence with the free boon,
 Falling as sunshine on many a roof!—
 Hasten good stewards of a bountiful Lord,
 Greatly to imitate Him evermore;
 Binding together in blessed accord
 The Halls of the rich and the Homes of the Poor!*

If I have said so much of the culpability of inaction, what can be said of the criminality of those thoughtless and selfish beings, who, in every community, cause and perpetuate nuisances, to the danger and destruction of the lives of their fellow-creatures?

But alas! for those whose cause I chiefly plead, if the remedies I have as yet been pointing to were all. The root of the evil lies deep, and we need a deep reformation. I asked you at first to regard the work as a religious one, and having since accompanied me through the terrible details of the evils preying on the public health and happiness, you will now, perhaps, more readily grant me the necessity for so regarding it. Next to regard for the never-dying soul, comes care for the frail mortal body, for the impressions of the one are often but the counterpart of those of the other. It was the saying of a clergyman now deceased, "that he never knew a dirty Christian except one." His experience and testimony will readily be verified by all who have watched the progress and effects of Christianity. It sheds upon the home, as well as on the heart, a light and purity no other influence can yield. It only will be found sufficiently powerful, to clear away the last remains of those material as well as of those moral pollutions, in which our towns are alike swamped. It is true that, apart from religious duty, the well-being of society demands

* Tupper.

that this great work for elevating the masses of the people, in body and soul, be immediately taken up. The poor Arabs of our towns may for a time give us little anxiety, and less trouble; but they will not always remain uncared for. It has ever been, that the more luxurious and wealthy a people becomes, the wider grows the chasm between the rich and the poor; and the uncared-for poor have now wrecked many a glorious and luxurious state.

And now, I apprehend, that on a brief review of the imperfect sketch I have given, of the evils affecting the health of towns, and of the remedies these demand, you will acknowledge that I have established a plea for immediate, earnest, and energetic action in the cause of Sanitary Reform. I urge that plea, that many thousands of useful lives may annually be spared,—that the sickness and suffering of very many thousands more may be prevented,—that bereavements and destitution may be obviated,—that tens of thousands of our fellow-citizens may be rescued from material and moral degradation,—that their true dignity and place in society may be vindicated,—and that *“God in all things may be glorified.”*

ERRATA.

For 3,428, on page 8, read 3,248.
 — 57, — 30, — 59.
 — 250, — 30, — 259.





